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THE MAGNAVOX COMPANY, et al,)
Plaintiff,)
vs.)
CHICAGO DYNAMIC INDUSTRIES) No. 74 C 1030
and SEEBURG CORP.,) and
Defendants) 74 C 2510

Monday, December 27, 1976

FILED

Parties met pursuant to recess. MAR 2-1971

PRESENT:

H. Stuart Cunningham, Clerk
United States District Court

MR. ANDERSON
MR. WILLIAMS
MR. ALLEGRETTI
MR. BRIODY

appeared for The Magnavox Company;

MR. THREEDY

appeared for Chicago Dynamic Industries;

MR. GOLDENBERG
MR. RIFKIN

appeared for the Seeburg defendants and World Wide Distributors.

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THE CLERK: 74 C 1030, Related Cause 74 C 2510,
Magnavox v Chicago Dynamic; case on trial.

MR. THREEDY: If I may, your Honor, we have a problem, and I have been holding off coming to the Court with it. It appears that I have lost a client, and the Court has lost a defendant. Chicago Dynamics has been seized by the banks, the assets have been sold. While the corporation structure legally may be there, there is nothing left. They have not been in operation since the day after Thanksgiving.

I would like to withdraw, but I thought -- I have been holding out. I have been writing them, both the banks as Receivers, the directors and officers of the remaining corporation, and I have gotten no response whatsoever from any of them. The bank has indicated that they are not too sure, but they were not going to get involved in the lawsuit, although they have all of the physical assets of Chicago Dynamics.

With your permission, I would submit a formal motion to withdraw as attorney.

THE COURT: This company is not manufacturing anything?

MR. THREEDY: They haven't been, your Honor, since the day after Thanksgiving. As I understand, it's been padlocked, and they are just out of business.

MR. ANDERSON: Your Honor, of course, that presents a dilemma to the plaintiffs. There is substantial past exposure, there may be something left against which that exposure can be exercised, and we -- while I respect Mr. Threedy's desire to be relieved of his duties in the case, I think we do either want to have a lawyer here or the defendant here or have some sort of a judgment entered to perfect whatever rights we have against whatever is left of that company. If there is nothing, the judgment can't do any harm, of course.

THE COURT: I'm worried about the question of notice.

What have you done, Mr. Threedy, to acquaint your client with your intention to withdraw from the case?

MR. THREEDY: I have copies of correspondence that I have had with my client from the date that I received notice of this fact, which was effectively December 9. I have written them twice, I have written the banks with copies of everything, I have called them, I have talked to a director of the company, I have talked to the managing agent of the company, I have talked to the attorney for the bank.

THE COURT: Do they all know that you intend to withdraw?

MR. THREEDY: They know certainly by my letters that I do.

THE COURT: May I see a letter in which you say you were withdrawing?

MR. THREEDY: This is the latest one, your Honor.

THE COURT: Did you receive any acknowledgment of this letter of December 21st, Mr. Threedy?

MR. THREEDY: I have received no acknowledgment. I have not had my phone calls returned, either.

THE COURT: Is anyone on the premises out there at 1725 Diversey Parkway to receive mail?

MR. THREEDY: I understand there was a skeleton force there, with Mr. Marcus, who was the managing agent during this period of time, called back by the bank to make sure that the premises were kept and maintained.

I understand that the bank closed it down on Wednesday afternoon, left it until Monday, and the boiler, while nobody was there, blew. So they called in a skeleton crew to keep it going as best they could.

I have attempted to call many times to Mr. Marcus. I have talked to Mr. Click who was an officer and director of the company, who has not been back to work since Wednesday before Christmas. He informs me that his last paycheck and his travel expense checks have been returned marked not sufficient funds.

I certainly have not been paid since last September, your Honor, and that was only on account of an old statement that was due.

THE COURT: Well, I think you have done about all you

could have been expected to under the circumstances.

I am going to give you leave to withdraw.

We will continue with the trial as to Chicago Dynamic Industries, Inc., and I will ask you to notify them and the attorneys for the bank that the trial is continuing, that they remain in as a defendant, and the Court will decide the case on the basis of the evidence that is submitted.

I am not going to enter a default against them at this point. We will just continue to take the evidence and see how it comes out.

MR. ANDERSON: Your Honor, I have prepared a final judgment, and I would move for entry of the judgment.

THE COURT: No, because I would have to hear the evidence in order to know whether the judgment was proper. I am not going to find them guilty unless I am satisfied that they are guilty. Their mere failure to be here does not constitute an acknowledgment of guilt.

If I were not trying the case as to the co-defendant at the same time, that would be another matter. How much difference is the evidence as between the TV Ping Pong and the game of Seeburg?

MR. ANDERSON: There are differences, and there are different games, and there are more games, and certainly it seems that we should not have to put in-- we will be putting in our proofs, of course, on the infringement by the Seeburg games, and we will be meeting whatever defenses Seeburg puts forth as to any contentions of invalidity.

But we would not, with the absence of Chicago Dynamics, be putting in any proofs as to their accused games. Some of them are substantially identical to the Seeburg games. There are several that are quite different and would require some separate proofs, perhaps.

THE COURT: I am hesitant to enter a finding against them, just on the basis of their not being here to defend themselves in an ongoing trial.

I would have to require a prove-up, I think, in any patent case or any case of this complexity, even if there weren't a trial going on.

This is not a liquidated damage case. It is a case in which liability is disputed.

I am inclined to think now that I will require the plaintiff to go ahead and prove up its case against Chicago Dynamics, just as though they were here.

Now, obviously it is going to be a lot

easier for you than it would be if Mr. Threedy were here to cross examine.

That is my present inclination. It is going to be some time before we actually reach that bridge, I suppose. Maybe I will change my mind by that time. I do not mean, Mr. Threedy, to commit myself irrevocably to this point of view at this time.

MR. THREEDY: With the question of validity of the patents, which is a public concern, not only for my client or Seeburg, but the public in general, I think that question should be decided first before really one is found to be an infringer.

THE COURT: Of course, that will be decided in the Seeburg suit.

MR. THREEDY: Absolutely. And our defenses were joined there, your Honor, with counsel for Seeburg. So there would be no difference in that.

THE COURT: The record should show that Mr. Threedy has tendered to the Court a copy of the letter dated December 21, 1976, addressed to Chicago Dynamics Industries, Inc., 1725 Diversey Parkway, Chicago, Illinois, in which he sets forth that he will be making a motion to withdraw as attorney for that company this morning, December 27th. He sets forth in the letter that he has not been paid

for certain outstanding services, and that there appears to be no prospect that he will be paid, and that he is not in a position to continue with the trial of this case under those conditions, and the Court is in full agreement with that proposition.

A copy of this letter was sent to Mr. Bruce Bernstein at Sidley & Austin, One First National Plaza, Chicago, Illinois. They are the attorneys for the bank which has taken over the assets of Chicago Dynamic Industries, Inc.?

MR. THREEDY: That's correct.

THE COURT: Which bank is that?

MR. THREEDY: I think that's the National Bank, and there's another one, Main Bank. They are both local, I believe.

THE COURT: If you will advise Mr. Bernstein and the company of what has taken place here by letter, and then, in view of the very slow mail delivery we have these days, if you would telephone Mr. Bernstein today --

MR. THREEDY: I will personally deliver a copy.

THE COURT: All right, fine.

MR. THREEDY: He is at First National.

THE COURT: And if at any time during the course of this trial, anyone wants to enter his appearance on behalf of Chicago Dynamic Industries and take up where you left off, they will be welcome to do so.

MR. THREEDY: Thank you, your Honor.

MR. ANDERSON: Your Honor, this is a matter of first impression for me, and I'm not certain just what

problems might arise. I can see trying the case against Chicago Dynamics in absentia, except that, conceivably, they could come in at some time and claim that we weren't here, and try to get whatever judgment is entered set aside, or some sort of redress, and that could be in spite of Mr. Threedy's efforts.

Would it be appropriate for the Court or for us, with the imprimatur of the Court, to have the Marshal serve something on whoever might be responsible, to notify them that they will be found by what is occurring here?

THE COURT: Well, of course, this is exactly what I hoped to accomplish by Mr. Threedy's letter and telephone call here, but I don't think it would hurt anything for you to follow up, Mr. Anderson, with a notice that the trial is proceeding, and that they will be bound by whatever judgment is rendered in the case.

MR. THREEDY: Mr. Anderson's firm has already notified the bank of their position with respect to the assets that they have purchased, the security, purchased themselves back from CDI, with respect to being possible infringers by disposing of whatever games may be involved in this lawsuit, so the bank does know of Mr. Anderson's position with respect to that matter, but, certainly, he can do whatever he wishes with respect to getting formal

service on them through a marshal or any other form.

THE COURT: All right.

MR. ANDERSON: All right, thank you, your Honor.

MR. THREEDY: Thank you, your Honor.

THE COURT: All right, shall we proceed?

MR. ANDERSON: Yes. We would like to recall Mr. Ralph Baer.

THE COURT: Mr. Baer.

Will you re-swear Mr. Baer.

(Witness sworn.)

MR. ANDERSON: Your Honor, during the preceding session, Mr. Baer testified concerning the activities of himself and the group at Sanders beginning in about September, 1966 and developing the TV games which are the subject matter of the patents, which are the subject matter of this litigation, and we had interrogated the witness, and he had explained what he had done up to a particular demonstration unit, Plaintiff's Exhibit No. 62.

At one point the Court indicated in a query about the relationship between those particular demonstration units and the circuit diagrams on the one hand, and the two patents in suit, and at this time I think it would be appropriate to have Mr. Baer describe certain of the documents that have already been referred to in the course of the testimony, and specifically I will ask him questions concerning their relationship to the two patents.

RALPH BAER,

called as a witness by the plaintiff herein, having been first duly sworn, was examined and testified further under oath as follows:

DIRECT EXAMINATION (Resumed)

BY MR. ANDERSON:

Q Mr. Baer, I would like to place before you Plaintiff's Exhibit 64-44, which you stated in your original testimony was a document which you personally had typed, I believe, but represented notes prepared by Mr. Rusch, is that correct?

A That's right, Mr. Anderson.

Q Now, at page 5 of Plaintiff's Exhibit 64-44, or page 6, there is a description of certain games, soccer, hockey, polo, etc., and I think you testified about those.

Did that original writing of Mr. Baer result in any games that were actually built at Sanders in their development work?

A Yes, they did.

Q And can you briefly describe the games that resulted from that portion of Mr. Rusch's original memorandum which was typed as the document of May 10, 1967?

A Yes, certainly.

In particular, ball games of a hockey or

soccer type, which we came to give names such as ping pong or tennis and hockey, were eventually implemented through a series of hardware which we already saw here when we were here in the Court the last time, and to answer your question specifically, at least two of those games contained in the menu of games, of which Exhibit 62 you pointed to a minute ago, is capable of performing.

Q I would like to hand you a copy of the Rusch Patent Reissue 28,507.

Your Honor, this is a part of a book which we handed up as Exhibit No. 1, I believe, on the first day of the trial, but I will hand you a second copy.

Mr. Baer, will you please -- are you familiar with the Rusch patent, Reissue 28,507?

A Yes, I am.

Q Can you state whether or not any of the games which were developed as a result of Mr. Rusch's May 10, '67 initial memo resulted in descriptions or drawings of the Rusch Reissue Patent Re. 28,507?

A Yes, I can.

Q Will you go through the drawings and just point out, if you will, where, in the drawings, the various soccer, hockey and the like games do appear that were the

result of Mr. Rusch's original memo and the work at Sanders.

THE COURT: I have got -598 here. Is that what I should have?

MR. ANDERSON: No, you should have ---

THE COURT: -507?

MR. ANDERSON: -507. I'm sorry.

You might as well keep '598.

BY MR. ANDERSON:

Q Will you please go through -507, Mr. Baer?

A I have done so, and if you will turn to the page on which Fig. 12A is shown --

Q That's sheet 19 of 16 sheets of drawings?

A Yes, sheet 9 of 16 sheets.

-- you will find a block diagram which is generic to a number of ball games in that it contains the elements of every ball game. The hardware which results from the implementation of this block diagram is contained in Exhibit 62 and others, and if you go on to the next page, to figures 12B and C, for example, you see diagrammatic representations of a -- I believe in the case of 12B a ping pong or a tennis game in progress, and, in the case of 12C a hockey game in progress of being played symbolically.

Q I would like to hand you Plaintiff's Exhibit 65-119. I believe during your original testimony you described that as a circuitry diagram of certain circuits that Mr. Rusch developed.

Do you recall that and, if so, will you explain again briefly what is shown in Plaintiff's Exhibit 65-119?

A Certainly. The exhibit you handed me is a schematic of a TV game, which I believe was demonstrated around about January of 1969.

If you look at the elementary blocks which stand out as sub-elements on this page, and if you would like me to, I can relate those more or less one for one with Fig. 12A, if that is what your intent is.

Q Just briefly describe what each block is or what each circuit is, first, on Exhibit 65-119. Then, if you can, relate it to the patent drawing, Fig. 12A of the Rush patent '28,507.

A Starting in the upper right-hand corner of 65-119, we see a module labeled --

THE COURT: May I ask a question here? Is there any dispute by the defendant of the proposition that the '507 patent, whether it be valid or invalid, was generated by this work as represented by Exhibit 65-119?

MR. GOLDENBERG: No, your Honor. There is no dispute on that.

In other words, we are not questioning, for instance, that Mr. Rusch is not the inventor of the subject matter of that patent. We are not questioning that work that was done which led to that patent, application for that patent, was done within these periods of time that Mr. Baer has talked about and that these documents were indicated.

THE COURT: Your point is that it was obvious, and that it was not novel.

MR. GOLDENBERG: That is correct, your Honor.

THE COURT: Does that shortcut any of this testimony, Mr. Anderson?

MR. ANDERSON: Your Honor, I believe that the testimony has several aspects which are important to the case.

One, I think it will be necessary for the Court to have an understanding of what each of the blocks in Fig. 12A does in playing the game, when we get to questions of applying those same blocks in the claims to the accused product.

Furthermore, I think Mr. Goldenberg has answered two of the questions of the Court, namely, that he is not questioning that Mr. Rusch did the

work, and that he did the work at the time that is set forth by Mr. Baer, and that the work is actually represented in the patent of Patent 28,507.

I think, though, that Mr. Goldenberg, from reading his brief and understanding his position, will contend that there is an insufficient difference between the circuits that Mr. Baer is now describing and prior work that was done at Sanders, which he is going to contend is prior art.

Is that true? If so, I think that is another reason we would like to tell the story.

THE COURT: Yes, I understand that.

MR. GOLDENBERG: That is not quite it. But in essence our contention is that this work of Mr. Rush was preceded by the earlier work of Mr. Baer, and Mr. Baer's work stands as prior art with respect to the later work of Mr. Rusch, and it goes to the question of obviousness and invention, as your Honor has said.

MR. ANDERSON: Is it appropriate to proceed, then, your Honor?

THE COURT: Yes, indeed.

BY MR. ANDERSON:

Q Mr. Baer, will you proceed, please?

A Returning to 65-119, if you will look at the schematic at the upper left-hand corner of that page, which is labeled "Horizontal Saw Tooth Generator", you find its equivalent in Fig. 12A labeled as "Item 116, horizontal sync saw tooth generator."

Just below the horizontal oscillator is a vertical saw tooth oscillator on 65-119. Its equivalent is item 115 in Fig. 12A.

In the center of Exhibit 65-119 you see two elements which are labeled "Spot Generator Number 1" and "Spot Generator Number 2", and you will find them as items 125 and 126 on Fig. 12A.

THE COURT: I don't follow you there, Mr. Baer.

THE WITNESS: I am sorry.

THE COURT: What seems to be labeled 117 on Fig. 12A looks like it is similar to these circuits on 65-119. But items 115 and 116 don't have any of the detail.

What am I missing here?

BY MR. ANDERSON:

Q Mr. Baer, can you perhaps as a threshold matter explain the relationship of the circuit diagram of any circuit diagram such as Plaintiff's Exhibit 65-119 and a block diagram such as the block diagram of Fig. 12A of the Rush patent, 28,507?

A Yes. I would be glad to.

In a finished piece of hardware, when the schematic is drawn to represent all its various components, depending upon the ability of the draftsman to do a comprehensive and comprehensible job or otherwise, you can either recognize the elemental blocks of which this equipment is constituted or you can't.

We are fortunate in 65-119 in having a schematic in which the draftsman, in this case Bill Harrison, who built the equipment, took pains to isolate on that page elemental building blocks, schematically

just as they are represented in a block diagram in Fig. 12A, so that there is a one for one correspondence.

That is what I was trying to follow.

Let me start all over again, and maybe you can stop me if there is some reason why you cannot correlate the two.

Q Perhaps before going to the block diagram, referring just to the Reissue Patent 28,507, and for the moment setting aside the Rusch-Harrison drawing, Plaintiff's Exhibit 65-119, can you point out within the various drawings of the patent what actual circuit, as shown in Patent '507, would be in, for example, the horizontal sync sawtooth generator box 116 in Fig. 12A?

A Yes.

Q Would you do that, please? Perhaps that will help to correlate the three.

A The horizontal sync sawtooth box on Fig. 12A is detailed on the schematic of 65-119 in the upper left-hand corner, and that detailed schematic is headed just above it, "Horizontal Sawtooth Generator".

Does that explain it?

Q No.

THE COURT: I understand that is what you are saying, and Mr. Anderson understands --

BY MR. ANDERSON:

Q Mr. Baer, is the horizontal sawtooth generator

as it appears to the eye in 65-119 shown in one of the drawings of the Reissue Patent 28,507, so that we can correlate the drawings?

I would like you to refer to sheet 4, if you will.

A Yes. If you go back to Fig. 7 of Reissue Patent '507, you find essentially an identical schematic of a horizontal sawtooth oscillator. That is, it is identical, essentially similar, to that on 65-119 in the upper left-hand corner.

Q So can you relate a little more specifically and graphically how Fig. 7 of the Reissue Patent 28,507 appears in Plaintiff's Exhibit 65-119, the drawing that Mr. Harrison and Mr. Rusch generated?

A I'm afraid I am missing your point. It is the schematic in the upper left-hand corner. Would you like me to detail what that schematic does?

Q Yes. I notice some circles, for example, in Fig. 7 of the patent. What are those three circles?

A I see. Those are transistors. I see the problem now.

These three transistors are reproduced minus the circles on 65-119, and I see what the problem is. I have no difficulty seeing the difference, but obviously it is not obvious that the three symbols shown on 65-119, which represent transistors, are the same as those shown in circles on Fig. 7, but they are. That is a difference in notation and drafting.

Q So within each of the three circles there is a symbol, which includes an arrow, a vertical line, and then another line going out at an angle to the vertical line, and those represent the transistor, is that correct?

A That is correct, Mr. Anderson.

Q And are those shown in the longhand sketch, Plaintiff's Exhibit 65-119?

A Yes, they are.

Q And are they in exactly the same relationship or approximately, or can you compare the two?

A Yes. They are roughly in the same relationship, the same transistors. The lower left-hand one, the center one, the upper right-hand one, all have the same

functional -- all take the same functional part in making the circuit work on both schematics.

Q Now, in the over-all game, what is that functional part that is performed by the horizontal saw-tooth generator, as shown in Fig. 7, in the upper left-hand corner of Plaintiff's Exhibit 65-119? Just functionally.

A Functionally, the purpose of the horizontal generator is to develop a synchronization pulse at a rate which is required by a broadcast television system for synchronization of the raster in the horizontal direction.

Q And in Fig. 7 of the Rush Patent 507, are the synchronization pulses shown in any way?

A They are shown as the schematic, the wave form diagram in the lower left-hand corner of the page, with the wave form being indicated by two negative downward-going pulses, and the notation "five microseconds" next to one of the pulses, indicating that the pulse was five microseconds wide.

Q Five microseconds, as represented by a 5 and a small u and s?

A That's correct.

Q So that those two pulses are pulses of a series of synchronization pulses.

A That's right.

Q Is that what that shows?

A That is right. It is two pulses in an infinite series of pulses, separated by a period of time corresponding to that which it takes for the beam on a TV tube to go from left to right.

Q Now, I notice on the right-hand side of Fig. 7 there is another line, which apparently is some sort of wave shape. What is that line representing?

A That wave form, because of its appearance, is called a saw-tooth wave, which occurs at the same rate as the pulses which we looked at a moment ago, and is used to allow the symbol generators, those parts of the schematic which eventually result in a symbol appearing on the screen, to function.

Q Is that similar wave shape shown in Plaintiff's Exhibit 65-119?

A Yes, it is. To the right of the sub-schematic of the horizontal saw-tooth generator.

Q Can you relate Fig. 7 of the Rusch Patent '507 to any portion of Fig. 12A, the block diagram that you initially started to describe?

A Certainly. Fig. 7 relates to block 116 on Fig. 12A.

Q And in what respect does it relate -- is that what is actually inside the box that is not shown in Figure 12A?

A That's right, sir.

Q I see, and there are two lines coming out of the bottom of the block labeled 116 in Figure 12A. What do they represent?

A One of these lines carries the rectangular wave form, which was the one in the lower left-hand corner on Figure 7, namely, the horizontal synchronization pulse, on over to the right-hand side of Figure 12A to a block called "Summer and RF Oscillator".

The other line coming from block 116 is seen applied via arrows to block 125, 126 and 114. That happens to be the sawtooth waveform coming out of the generator which is applied to the three symbol generators.

Q Are the two lines coming out of the bottom of the block 116 sometimes called outputs?

A Yes, sir.

Q And can you specifically relate those two lines which constitute the outputs from the block 116 in Figure 12A to the corresponding parts of Figure 7 of the '507 patent?

A Yes. The output which is furthest to the left on 116 in Figure 12A is the one also furthest to the left

on Figure 7, below which the pulse waveform is shown.

Q And that's shown with a line coming out to the left, with a little circle at the end of it?

A That's right, and then, conversely, the other line going out to the right of Figure 7 terminating in a little circle just above the sawtooth waveform is identical to the line coming out on the bottom right of box 116 on Figure 12A.

Q Now, are corresponding outputs shown for the horizontal sawtooth generator in the upper left-hand corner of Plaintiff's Exhibit 65-119?

A One of them is shown. If you look at the small circle to the right of that subschematic above which there is a letter "A" and another picture of a sawtooth waveform, that corresponds to the right-hand output of Figure 7.

The sync output isn't shown on this schematic, that is, the rectangular wave is not formed.

Q Where did the sync output come out in the horizontal sawtooth generator in Plaintiff's Exhibit 65-119?

A The same place where it came from in Figure 7, namely, the left-hand side, the junction, if you would look at 65-119, of the 2,000 ohm resistor, which is denoted, 2K on that schematic, and a symbol denoting a diode, another resistor, and a transistor to the left

of that schematic.

Q All right, return now, if you will, to the block diagram, Figure 12A, and continue to relate the specific circuit diagrams of Plaintiff's Exhibit 65-119 to the various blocks of Figure 12A.

A All right. On Figure 65-119, just below the horizontal sawtooth generator, there is a similar arrangement of components schematically denoting the vertical sawtooth generator, and it's so labeled. That corresponds to block 115 in Figure 12A.

Q Now, you point out that schematically it looks the same as the vertical sawtooth -- the horizontal sawtooth generator. Are there differences between those two circuits?

A Yes, there would be differences in parts values, because the horizontal sawtooth oscillator operates at roughly 15,750 pulses per second, whereas the vertical sawtooth oscillator operates at 60 pulses per second.

Q And functionally, in the block diagram of Figure 12A, what is the function of the vertical sawtooth generator contained within the block 115?

A It provides the vertical synchronization pulse necessary in a standard video signal. It also provides the sawtooth required to input the spot generator, that is, the ball and paddle generators, in the middle of the

page of 65-119.

Q Now, again, in the vertical sync sawtooth generators, there are two output lines coming out the bottom of the block 115 in Fig. 12A. The one on the left appears to go into the summer. Is that in the same respect that you described?

A Yes.

Q The one on the left coming from the horizontal sync--

A Yes, it is.

Q -- generator to the summer --

A Yes.

Q -- and the one on the right, then, functions how, the output on the right coming out of the bottom of the block 115?

A It has again the same function as that we referred to earlier with respect to the horizontal sync pulse.

Q And provides a sawtooth shaped signal?

A Sawtooth shaped waveform.

Q All right, then, if you will, explain how the work of Rusch and your group is reflected in the remainder of Fig. 12A by using Plaintiff's Exhibit 65-119.

A All right. In the upper right-hand corner of 65-119 is the third schematic identical to the one immediately to its left which denotes the ball generator

which is labeled here "Spot Generator No. 3," and corresponds to 114 in Fig. 12A of -507.

Just below that is a circuit element which is labeled above it one-half of -- one-half cycle, the scriggly symbol meaning cycle -- flip-flop. That group of components is what is essentially contained in the box labeled 122 in Figure 12A.

In addition to that, if you will look to the left and to the right of this flip-flop schematic, you will see several symbols which are standard symbols for diodes, rectifiers, small arrows with a flat line across the point, specifically four on one side, four on the other side, shown in Figure 65-119.

Those components are the same as those shown above 122 on a one-for-one basis. The same eight diodes are shown there.

If you will go to the bottom right-hand corner of 65-119, you would see a series of resistors terminating at their left end with little circles marked C, D and E. These resistors, as well as the two transistor symbols and associated parts that form to the right, are basically what is contained in the coincidence detector labeled 121 at page 12A on page 12A.

Q That's at the bottom of Figure 12A?

A Bottom right, sir.

Q And that shows the three circles on the left, and are labeled Spot 1, Spot 2 and Spot 3 Video Pulse?

A Yes, sir. As a matter of fact, the order in which they are shown is also the same order in which they are shown on 65-119.

Next, if you go to the bottom left-hand corner of 65-119, again you see the letters C, D and E, followed by three symbols, three diode symbols, plus some additional circuitry to the right of those symbols.

That circuitry is essentially that which is contained in the summer and R. F. oscillator block at the top right-hand corner of 12A, which is not labeled on there, on that figure.

Q It doesn't have a number?

A Doesn't have a number.

Q It has the entry in the box?

A Right.

Q Summer and R. F. Osc.?

A Yes, sir, it's not numbered.

Q What's the function of a summer?

A The function of a summer is to gather up all the various constituents of the video signal, namely, the

horizontal synchronization signal, vertical synchronization signal, and the video information, in this particular case that video information which relates to playing spots, player symbol on one side of the screen, player symbol on the other side of the screen, and the symbol which denotes the ball, or if there were a net or a wall, those symbols.

These symbols are summed together, added together, and then applied to -- in this case to the R. F. oscillator so that it can be transmitted.

In any event, they have to be gathered together so as to constitute a composite video and synchronization signal of the right format so that a broadcast TV receiver is capable of interpreting what's coming at it, and handling it successfully in display.

Q Now, you mentioned three bits of information, or signals coming into the summer, video information, horizontal synchronization information, and vertical synchronization information. Is that related to the three small arrows that are coming into the box marked "Summer" in Figure 12A of the '507 patent?

A The answer is yes. Well, specifically, C, D and E refers to a gathering up or summing together of the video components of the signal.

Q You are referring now to Plaintiff's Exhibit 65-119?

A Yes, I am.

Q And in Figure 12A of the Reissue Patent '507, are the three elements coming into that box marked "Summer" as shown by the three arrows, namely, the video information the horizontal synchronization information and the vertical synchronization information?

A Yes, they are, through three arrows that enter the block called "Summer and R.F. Oscillator". The arrow at its left coming from a block called "OR Gate and Pulse Shaper" enters the video information which corresponds to that of items C, D and E on 65-119, whereas the bottom arrows, the ones entering at the bottom of Summer and R. F. Oscillator, arrows that go upwards, come directly from 115 and 116 and provide

the horizontal vertical sync signal components of the composite video sync signal.

Q Now, as the game was actually built in accordance with 65-119, does that model still exist? Is that one of the ones here?

A Yes, it is.

Q I show you Plaintiff's Exhibit 59. Can you state whether or not that's the actual physical device that was constructed in about 1968 by Rusch and Harrison in accordance with Plaintiff's Exhibit 65-119?

MR. GOLDENBERG: Excuse me, Mr. Anderson. What was that exhibit number? I missed it.

MR. ANDERSON: 59.

MR. GOLDENBERG: 59, thank you.

BY THE WITNESS:

A Yes, it is, Mr. Anderson.

BY MR. ANDERSON:

Q Now, if you can, just refer to the patent drawing, the 12A, and, very functionally, describe how the box -- the blocks function and how they functioned at that time to enable one to play a game on the circuit of the physical Exhibit 59.

A All right. If you --

Q Referring to Figure 12A, if you can.

A If you refer to that figure, you note that

there are a number of pictorials shown at the bottom, 131, 137, 122, 128, which are meant to appear as knobs, manual control knobs, allowing manual adjustment. Those correspond to some of the knobs shown on this hardware in my left hand, and if you look specifically at the one labeled 131, which has its schematic counterpart in the control shown as control 129, that is the control which is intended to move the symbol on the screen which we call the paddle to vertically up and down on the screen.

Q Now, there's a solid line going from that resistor 129 straight up into the box 125 marked "(Paddle A)" and is that the paddle you are referring to?

A That's right, sir.

Q And that would appear as a spot on the TV screen?

A Yes, probably on the left-hand side of the screen.

Q And manipulating the knob 131 would then do what to that paddle?

A Move it up and down, vertically up and down on the screen.

Q All right.

A Similarly, if you go to knob 132 on Figure 12A, you will notice that its equivalent schematic reaches

up into the bottom of 126, which is labeled "Paddle B" and has the same function, namely, to move the paddle up and down the right-hand side of the screen.

Q Do those paddles, Paddle A and Paddle B, function as hitting spots in the play of the game?

A Yes, they do. They have the -- as their objective the interception of another symbol that moves across the screen from left to right or right to left, and intercept it and return it to the opposite side of the screen, that symbol being the ball which is denoted as 114 on 12A and labeled "Ball".

Now, if you will notice, there are two arrows entering the ball at the bottom right which come from this aggregate of diodes and resistors just above Flip-Flop 122. Let me --

Q That's on the right-hand side slightly below center of Figure 12A, the Flip-Flop 122?

A Right. Now, if you will follow that, you are observing the source of the signals which cause the ball to go from left to right or right to left, which, in this case, is an automatic function of the machine. There are additional knobs shown on this -- on Figure 12A denoted 127 and 128 which, if you will follow the dotted lines over to the right and up into the left again, terminate on controls 126 and 125 -- I think I have got

the order inverted -- but these have a purpose of determining or allowing the participant to interactively determine the vertical flight of the ball once it has left its paddle. Once the paddle has intercepted a ball symbol, just whether the ball would proceed to the right in an upper direction, straight across or downward, was determined by turning one of these controls which are shown as 127 or 128 on this page.

Q I notice on the left of each of those two controls, 126 and 125, the letters "V" with a subscript "L", and a "V" with a subscript "R".

What is the significance of those legends on Fig. 12A?

A V_L would stand for "vertical left", and V_R would stand for "vertical right," which means that the voltages coming into the point where the two lines labeled " V_L " and " V_R " join and which control the vertical position of the ball spot on the screen, affect in effect, either when the ball is going from left to right or right to left -- that is affected, whereas the other one, the alternate one, is turned off by virtue of the way the circuit works.

Q So the two knobs, 127 and 128, then, are actually manipulated by the two players, A and B, is that correct?

A That's right.

Q And that causes an effect upon the direction of flight of the ball as it moves away from that player?

A That's right. In the vertical direction.

Q Now, I notice two additional similar components, resistors, variable resistors, 135 and 134, just below the two you have just described. What are the functions of those two, 134 and 135?

A These are internal controls which permit a

machine to move the ball from left to right at a certain rate and from right to left at a certain but not necessarily the same rate, depending upon the setting of those internal controls or adjustments.

Q Now, in the play of the game, then, how is play initiated, and, again, if you can, make reference to the blocks and the controls. Just describe briefly one point of a game that would be played on this particular block diagram, Fig. 12A, and the structure that you actually built as exemplified in Exhibit 59.

A If you can imagine for a moment that the ball spot was intercepted by the left-hand paddle of the player on the screen by virtue of the fact that the human participant had maneuvered the paddle successfully to the right place and it had intercepted the ball, an electronic coincidence signal, a signal that says aha, the ball spot and the player symbol, the paddle, were at least in part overlapping on the screen and therefore coincident in real time, this coincidence signal enters block 121 in the bottom left-hand corner on Fig. 12A, and it signals to that block that this particular coincidence, namely a coincidence between the ball and the left-hand paddle, had taken place.

Q Across the top of Fig. 12A I notice three arrows

labeled "Spot 1 Video Pulse", "Spot 2 Video Pulse", and "Spot 3 Video Pulse".

Do they enter into this sensing of coincidence?

A Yes, they do, because although -- well, as the figure shows, those pulses which enter the coincidence detector 121 are the same as those pulses. They are labeled "Spot 1 Video Pulse," "Spot 2 Video Pulse," and "Spot 3 Video Pulse" to the left of the coincidence detector block.

Q So is the technique used on Fig. 12A then, showing the three arrows coming out of the top and the three circles down at the bottom just a shorthand way of showing that the arrows are actually connected to the box marked "Coincidence Detector 121"?

A Yes, it is. If you like, mentally, you can connect them with lines.

Q So each of the three boxes marked "Spot 1", "Spot 2", and "Spot 3", have some output signal coming out the top there, through the three arrows, and going into the coincidence detector, is that the way that functions?

A That's right.

Q Now, you have explained that when the player manipulates Paddle A up and down so that it intercepts the ball which is being generated in the block 114, it causes coincidence, which is detected in Box 121.

Then what occurs, Mr. Baer?

A Then the output of box 121, which is the arrow going straight up into the Flip-Flop box 122, signals to the Flip-Flop to change its state. A Flip-Flop is a device which has two stable states. As soon as that happens, the output of the Flip-Flop, which comes out in two vertical lines, the left and the right at the top of the Flip-Flop box, alters their polarity. They might

have been zero volts on the left-hand side and five volts on the right-hand side before, and when the Flip-Flop receives this triggering signal from the coincidence detector, they invert, and then the left-hand side becomes, say, five volts and the right-hand side becomes zero.

Then through the action of the various components in that collection of parts above the Flip-Flop box potentials are applied, voltages are applied, to a spot generator which creates the ball, that is block 114, which causes that spot to start traveling to the right of the screen now at a rate determined by a number of variables.

Q Now, prior to the time when Mr. Rusch developed the circuit of Plaintiff's Exhibit 65-119, had any prior circuit been constructed in the Sanders group which produced that reversal of a ball or spot in response to a coincidence?

A No, sir.

Q What work along that line had been done at Sanders, if any, prior to Plaintiff's Exhibit 65-119, in the circuit constructed in accordance therewith?

A We had built movable spots before. We had built horizontal and vertical synchronization oscillators before. We created a game which allowed us to move those

spots on the screen. But the essential element of a ball moving back and forth between the paddles first appeared after Rusch designed this circuitry in our hardware.

Q You have described additional work done in the Sanders group --

THE COURT: Excuse me, Mr. Anderson.

May I just ask this question? Is the Flip-Flop circuit the most important aspect, then, of this ability to make the ball move back and forth between the paddles?

THE WITNESS: No, sir. I wouldn't label it as the most important element. It is a way of producing voltages which move a ball back and forth. The most important element is the generation of the ball in the first place, and the ability to move the ball back and forth by some means requires that you build a circuit that does it. The Flip-Flop is that circuit that does it.

THE COURT: You had the ball before?

THE WITNESS: We did not have the ball before.

THE COURT: You did not have the ball before?

THE WITNESS: That is precisely the point.

THE COURT: I misunderstood.

BY MR. ANDERSON:

Q You said you did have spots before. Is that correct?

A Yes.

THE COURT: I was assuming the "spot" and "ball" meant the same thing.

BY MR. ANDERSON:

Q Will you explain what you meant by "spot", Mr. Baer?

A I think the confusion comes in due to the fact that at various times we called symbols on the screen spots, dots, symbols, figures, and we have used all those terms interchangeably. It probably would be best if we called symbols "symbols" and ball a "ball" and paddle "a "paddle" from here on out.

THE COURT: How did the ball differ from the spot or the symbol?

THE WITNESS: Primarily in that the ball is a symbol that is moved both by the machine automatically as well as by the players. In this case, in this particular implementation, a ball is moved horizontally by the machine, by components of the machine, whereas vertically its flight is determined by how you set a particular control.

BY MR. ANDERSON:

Q I would like to hand you Plaintiff's Exhibit 65-197. I think you previously have testified that after the Rusch circuit of Plaintiff's Exhibit 65-119 was completed, further work was done on additional circuits. I ask you if that is one of them. I am not certain whether you described this one in your original testimony or not.

A I believe I did.

Q What is the relationship between Plaintiff's Exhibit 65-197 and the work that was done at Sanders by your group in developing TV games?

A 23-197 --

Q 65-197.

A I am sorry. I have two different sets of nomenclature.

Exhibit 65-197 describes a TV game which in terms of time was constructed some time after that which is described by 65-119.

Q I think you stated when the 65-119 circuit was actually built. Do you recall now approximately when that was?

A Yes, I do. Since it was demonstrated around January of 1969, it must have been built during the latter part of 1968.

Do you wish me to continue?

Q Yes, please.

A If my recollection serves right, 65-197 was built probably nine months later.

Q Nine months later?

A Yes. That is sometime in a period of, say, September, October, November of 1969.

Q Of 1968 or 1969?

A 1969.

Let's see.

Q All right. Let me show you just to try to get the time frame set up a further circuit diagram about which you have testified, which is Plaintiff's Exhibit 64-281.

This is the one we were on at the end of the session, and I think you have testified that that particular circuit was built into Plaintiff's Exhibit 62.

A 62, yes.

Q I think you said that was the last one in the series.

A That's correct, sir.

Q When was that built?

A Towards the end of 1969, after the one which is depicted in 65-197 was built.

May I see that again, Mr. Anderson?

Q Yes. The date on the bottom of the drawing, I believe, is 1-20-69.

A I seem to be out of step by one year.

Q Let's work back from the last demonstration unit that you constructed before Plaintiff's Exhibit 62, this brown box that is right here. That was the last thing you testified about in November.

Now, approximately when was that final demonstration unit, Plaintiff's Exhibit 62, constructed?

A In November, December of 1968.

Q When was that demonstrated?

A In January of 1969.

Q How do you know that?

A Because I recall that 1969 was the year when we brought many representatives of various TV manufacturers into Nashua to demonstrate what we came to call as the brown box, Exhibit 62.

Q And based upon that clear recollection, will you work back to Plaintiff's Exhibit 65-197, and state what that is and approximately when that was constructed?

A I think that would place it into the September, October, maybe November time frame of 1968.

Q Describe in general terms, preferably by areas of the drawing, what is shown in Plaintiff's Exhibit 65-197?

A The TV game which is described by the schematic was capable of playing three specific games -- in fact, it is equipped with a three-position switch, which allows the user to switch the box from one game to another to a third.

Q In the drawing where is the three-position switch? I don't see a label "Switch".

A If you look about one-third in from the right going toward the left, you see a repeating series of three circles vertically displaced.

Q A vertical line of four sets of three circles about two-thirds of the way to the right?

A Yes. That is right. And you will also notice that an arrow pointing to the right touches the upper-most of these groups of three circles in each case. This arrow is the moving part of a three-position switch that moves from this upper circle to the central circle to the bottom circle in response to turning a knob on the box.

Q What is the function of the three-position switch in Exhibit 65-197?

A To select three different games.

Q Do you recall what the games are?

A Well, one of them clearly is tennis or ping-pong. Another one is handball. It is difficult to say right now what the third one is.

Q If you don't recall, take either tennis or handball as just a typical example and point out how the various areas of the set function to play the game.

A All right. If you go back to the upper left-hand corner, you probably will recognize groups of symbols to be very similar to those we saw in previous pages. We have the vertical and horizontal sync oscillator up there again.

Q Those are the two circuits that look substantially the same in the upper left-hand and center left-hand side of this drawing?

A That is right, with the upper one being the horizontal sync generator, and the one below it the vertical sync generator.

Down the center of the paper and repetition of components represents three dot symbol generators, the upper portion which winds up at a terminal, a little circle labeled "A" being player number 1 or

paddle number 1, and the next group of circuitry down below, which terminates in a little circle labeled "B" being player number 2, and the one immediately below that being the ball symbol -- let me double check that..

I am incorrect.

The uppermost one of the circuits which terminates in the circle A is the ball generator. The next two below it are Paddle 1 and 2, and then the schematic at the bottom, the center bottom of the page, which is only one-half of the schematic immediately above it, is a spot generator whose function is to create a line, a vertical line, on the screen of the TV set, which, depending on whether you play handball or tennis, either appears at the left-hand edge of the screen or in the center.

That is, for handball it becomes a wall at the left; for tennis, it becomes a symbolic net at the center of the screen.

Q Then in the handball game how do these four spot generators, the top one with the output A for the ball, the upper center one, B, for the first player, and the third one, with the output C for the second player, and the wall generator with the output D at the bottom of the center of Exhibit 65-197, function in playing a game, and how did they, when you actually constructed

this particular circuitry?

A Well, they functioned much in the same manner as that which we discussed in connection with 12A before in the Reissue Patent '507, in that the outputs, each one of these generators, is both displayed on the screen, as video information, and used as logic signals, which command the block, which in Figure 12A was listed as a coincidence detector, to effect the various changes in motion of the ball which were necessary during the course of playing the game.

Q Now, where is the coincidence sensed in the game as shown in Exhibit 65-197?

A If you will look to the right of the switch symbols which we identified earlier here, you will see a series of diode symbols, heavy block arrows pointing at a vertical short line. It is these diode in conjunction with the resistors on this page that formed a so-called diode logic array, and it is that diode logic array that corresponds one for one with the block labeled "Coincidence Detector" in 12A.

Q Is the actual circuit diagram and circuit component shown in Plaintiff's Exhibit 65-197 the circuit that is shown in the '507 patent, or is the circuit shown in the '598 patent, or something else.

A It is the '598 patent.

Q The '598 patent?

A Yes.

Q Then I would like to hand you a copy of the '598 patent and ask you to point out, if you can, a diagram which would correspond to the circuit diagram that you built with the three position switch construction, 65-197.

A In '598, Figure 11A, which is sheet 6, shows a block diagram of a game that is essentially identical to that schematically shown in 65-197, in that it has all the same elements, player, ball generators, and wall generators.

Q Referring to Fig. 11 or Fig. 12 of the '598 patent?

A Referring to Fig. 11A specifically. You can also go on to Fig. 12 if you like, because Fig. 12 describes the handball game which is available by moving that three position switch on your schematic on 65-197 to the bottom position, I believe. At any rate, to one of the three positions.

Q Referring, then, to Exhibit 65-197 and relating it, if you can, to Fig. 12A of the '598 patent in suit, explain the correspondence between the blocks of Fig. 12A of the '598 patent and the more detailed circuit diagram of Exhibit 65-197.

A Certainly. We started the upper left-hand corner of Fig. 11A. Block 102 is labeled "Vertical sync generator" and corresponds directly with the circuit in the upper left-hand corner of 65-197.

Just below that circuit the horizontal sync oscillator on 197 has its equivalent in box 103 in Fig. 11A, labeled, "Horizontal sync generator".

The circuitry surrounding the four transistors at the center top of 65-197, which terminate on the right-hand side in a little circle labeled "A", and which constitute the ball spot generator, are identical to box 107, called here -- I am sorry. Box 101, which is called here "Dot Generator Number 3 ball" in Fig. 11A.

Immediately below the ball generator on the schematic of 65-197 we have four transistors, which cooperate to output a signal at terminal B on the schematic just below the circle labeled "B".

The equivalent block to the schematic in Fig. 11A is 107 -- well, it could be either 108 or 107.

There is really no difference between the two.

Similarly, the group of transistors which terminate in the terminal "C", the circle lettered "C", would be the alternate paddle generator, either Paddle A or Paddle B, 107 or 108 on Fig. 11A.

Finally, the two transistors at the bottom of the page and their associated parts, the bottom of the page of 65-197, are those generator circuits required to create the wall, which does not show up in Fig. 11A but shows up as a sketch of the wall-net in Fig. 11B.

You would have to go to 12A to see the block that corresponds to the wall generator. I am sorry I didn't notice that before.

In Fig. 12B block 120, which is the only additional block on that schematic at the top of the page over those shown in Fig. 11A, is the wall generator, block 120, and that corresponds to the circuitry at the center bottom of 65-197.

Q Now, as in the case of your explanation of the '507 patent, in referring to the '598 patent and the specific circuit that was built as shown in Exhibit 65-197, are the detailed circuit components and circuit arrangements shown in the '598 patent in other figures and, if so, just point out where, so that the Court can see the generation of a block diagram from specific

circuits in the patent.

A Yes. It is easy to do. If you go back to sheet 4 --

Q Sheet 4 of Patent 28,598?

A Yes.

Q That is the one that has Fig. 6 at the top of the page?

A That's right, sir. You will find the description of a sync generator under Fig. 6 which corresponds to that shown in the upper left-hand corner just below it on 65-197.

Similarly, if you go just below Fig. 6 to Fig. 7A, you see a group of four transistors and associated parts, which constitute the various paddles or ball generator components which are one for one identical to those shown in the center of 65-197, except that they are repeated there three and a half times

Q Then would that also be, for example, a detailed showing of what is in one of the three blocks, dot 1 and dot 2 or dot 3 of the Reissue Patent '598 in Fig. 12A?

A Yes, sir, that is correct. You could take, for example, Fig. 7A, draw 4 lines around it and place it on Fig. 12A, into either block 107 or 108 or even 101.

Q Go on, if you will. There is a block in the drawing marked "Flip-Flop". Is that block shown in

detail in the circuit diagram of the '598 patent?

A Yes. If you go to the next page, sheet 5, Fig. 9, a schematic representation of that Flip-Flop is also shown here.

Q Now, Mr Baer, this circuit diagram, Exhibit 65-197, appear to differ from the circuit diagram, Exhibit 65-119, that you have described with respect to the first patent, the '507 patent.

Are those circuits in fact different?

A Yes, they are.

Q Functionally and in a very general way, circuitwise, can you describe how the 65-197 circuit that was built and is represented in the '598 patent, differs from the circuit shown in the '507 patent?

A Yes, sir. There are a number of major differences. One is in the manner in which we generated the symbols on the screen, that is, the details of the circuitry required to produce the paddle and ball symbols, as well as the wall symbol, are quite different in the two schematics, in the two designs.

Furthermore, the 65-197 schematic shows the use of a wall which is now an active participant in the game in the sense that it has the capability of reversing the ball motion for the first time. That was not the case in 65-119.

Will you explain that a little further, please?

A All right. One of the inventions of the -285 patent, or its reissue equivalent, was the creation of the wall as a symbol on screen which had the ability to reflect or deflect a ball, in this case a reversal of a ball's motion, just as a real ball bounces off a wall, and that is shown on 65-197.

Going back to the generators, the method which we used for creating the symbols on screen in 65-197-- and which we showed in Reissue 28,598 -- is a method which we called Digital Method of Generation, because it results in logic level output signals from the paddle

and ball generator symbols, and was the outgrowth of work we did to overcome some of the drift and temperature problems we had had with Rusch's circuits, which are the subject of -507 -- 28-207.

Q In constructing --

THE COURT: What do you call the method that's used in -507?

THE WITNESS: We call -- Rusch called it Slicing Circuits, because he used slices of that sawtooth waveform we saw earlier today to determine the position of a spot on the screen.

BY MR. ANDERSON:

Q And do you have a name for the circuit that's in 65-197 and the -598 patent?

A Yes. As I said, we call those Digital Circuits.

Q Was the circuit -- I think you said the circuit of Exhibit 65-197 was actually built, was it?

A Yes, sir.

Q And does the model that was actually built still exist?

A Yes, it does.

Q I place before you Plaintiff's Exhibit 61 and ask you if you can identify that and relate it to the

other exhibits?

A Yes, sir. Yes, that's the box that corresponds to 65-197. In fact, here is the three-position switch we have been talking about, 1, 2, 3, all along, with these several physical wafers here representing the individual switches shown in the group of circles on the schematic.

MR. GOLDENBERG: Your Honor, may I approach while he explains?

THE COURT: Yes, yes.

BY MR. ANDERSON:

Q I'm sorry. I was diverted. Did you point out where the three-position switch is?

A Yes, it's right here. The physical switch is here. Here is the knob that actuates it, and, as you can see, there are several wafers, so there's a minimum of three and actually in this case something like two times six possible, a three-position -- that is, six-pole -- three-position switch, or switch functions, available on the switch.

Q And the other two boxes each include two knobs and a red button -- three knobs and a red button?

A They do. These knobs were respectively the horizontal and vertical positioning knobs that allowed us to move the player spots, the paddles on the screen, both up and down, left and right, and the third knob is the knob we referred to earlier which determined the path, the flight, of the ball, after intercept, in a vertical direction, which we came to call the English knob.

With the little red button, you had the function of initiating a game. If the ball went out of

Baer - direct

play to the left or right of the screen, pushing that button would make the ball come back and fly across the screen.

There's nothing else in these boxes.

MR. ANDERSON: Your Honor, with respect to the particular chassis that the witness has just identified, and the circuit diagram of that chassis, which is Exhibit 65-197, we do have a stipulation with defendants' counsel, namely, stipulations 160, 161 and 162, and I believe that chassis is now not operative in its present state, but it was, and the record so indicated, and we have a stipulation that the circuits shown in Plaintiff's 65-197 was built, tested and satisfactorily completed prior to May 27, 1969, May 27, 1969, I believe, being the original filing date of the Reissue -- of the parent patent that resulted in the Reissue 28,598 -- I'm sorry -- 28,507, the filing date of U. S. Patent 3,659,284, which was originally filed on May 27, 1969.

THE COURT: All right, why don't we take about a five-minute recess at this point.

MR. ANDERSON: Fine, thank you, your Honor.

(There was a brief recess, after which the following further proceedings were had herein:)

BY MR. ANDERSON:

Q Now, Mr. Baer, I would like you to refer to your final demonstration unit that you have previously described, Exhibit 62, and the circuit diagram which is Exhibit 64-281.

THE COURT: I think I already have this.

MR. ANDERSON: You should have.

THE COURT: Rather than have me accumulate these things, maybe I should take out the one from last time.

BY MR. ANDERSON:

Q I think you testified just before the break that this demonstration unit was built in late 1968 and demonstrated beginning in January of 1969.

Can you just briefly describe how this circuit diagram and demonstration unit of 64-281 differed from those that went before it, and, specifically, perhaps the three-position switch unit, Exhibit 65-197, just in functional terms, if you can.

A Yes. Since this new unit which is schematically depicted in 64-281 was going to be shown to parties outside of Sanders, we decided that it would have to have more capability to play a larger number of games than the three-position box we looked at a little earlier, so we equipped it with a series of switches which, when they are set up

according to little instruction cards, allow the game to be switched from one position to another, and still another, so as to enable it to play such things as ping pong, hockey, tennis, a chase game, a handball game, a volleyball game. We had a whole itinerary, a whole menu, of games which we demonstrated with this model, and that's essentially how it differs from our previous ones.

Q Now, did the demonstration unit shown in Exhibit 64-281 and the demo unit, Exhibit 62, use the digital circuit that you described before the break?

A Yes, Exhibit 62 uses the digital circuits.

Q Did the demonstration unit actually function at the time that you completed it?

A Yes, it did.

Q Do you know whether it functions today?

A Yes, it does.

Q Is it possible to demonstrate Exhibit 62, which is shown in Plaintiff's Exhibit 64-281?

A Yes, it is.

Q Will you, then, take whatever steps are necessary to hook it up and demonstrate to the Court -- if Mr. Baer may --

THE COURT: Yes.

BY MR. ANDERSON:

Q -- exactly how the demonstration worked with a TV set at the time, and how it works now, and what the various components are, to the extent that you can.

THE COURT: Will you give me the dates again?

This was early '69 it was demonstrated?

BY MR. ANDERSON:

Q Mr. Baer?

A The demonstration started early in '69, your

Honor. It extended throughout '69, to various representatives from TV manufacturers throughout the country.

THE COURT: Okay.

BY MR. ANDERSON:

Q Approximately when was the demonstration unit completed, Exhibit 62, Mr. Baer?

A Sometime in December of '68.

Q All right, then, explain exactly what you do in setting the game up and demonstrating it, please.

THE COURT: I can come down there. You don't have to move around.

BY MR. ANDERSON:

Q Perhaps you can explain and demonstrate how one game, such as ping-pong, would be played without a fixed wall, and one such as handball that uses a fixed wall, if that's possible?

A Yes, it's easy to do.

To begin with, the game box has a piece of what is commonly known as antenna twin lead coming out of it which carries in this case a channel 3 RF signal to the back of the TV set where it's connected to the antenna terminals back here, so that it enters the TV set just as a -- going through a switch box -- via the switch into here.

Q Now, you have a small box there between the

antenna terminal on the TV set and the demonstration unit, Exhibit 62. Will you explain what that is doing in there?

A Well, at the moment, we have that box connected so as to be able to switch back and forth between another model of the TV game. In actual practice nowadays, that box is generally provided by the manufacturer of TV games so that you can disconnect the antenna lead in from the room or wherever the game box, so as to avoid any possibility of having what amounts to a transmitter in the game box playing the signals right back into the TV antenna and broadcasting and interfering with other people in the area. That's a requirement the Federal Communications Commission has placed on this type of equipment. And there are some very stringent rules by which this box has to be built.

We simply use it as a switch here to go back and forth between this or this connection into the TV set, and if that confuses anybody, I will take those two wires off here and put them right back here.

THE COURT: No, it doesn't.

BY THE WITNESS:

A All right.

Now, what I have just done is turn the on and off switch on.

BY MR. ANDERSON:

Q You have turned what on and off switch?

A The on and off switch on Exhibit 62 on.

Let me turn the box around.

Q And you have hooked the demonstration unit, Exhibit 62, up to the antenna terminals of a TV set which we have marked Plaintiff's Exhibit 6 -- I might say it's a Magnavox TV set --

A I have just reached inside the lid of Exhibit 62 and taken out a series of program cards, we call them.

Q Now, what are the cards, and how do they function, again? I think you did go into that.

A We went into that. They are simply memory aids, to aid us to remember which of these many switches to operate. There's a red dot for the switches to be thrown. We are going to play ping-pong here, so these two switches require throwing, and I think we are on our way.

The box I hold in my hand is a left-hand player box, so it could correspond to the player on this side, and I will manipulate the controls, and we should be able to bring him up on screen.

Mr. Anderson, would you like to --

Q Here, maybe we better put it down on the floor.

A The box I hold in my left hand is labeled "Right-hand player box" and I should be able to bring the right-

hand side over. There we are. Let me play with that for just one second. I think it will look better. There we are.

All right, to begin a game, we press a button. Here we are. You lose your first move.

Why don't we simply go through the motions of what happens.

The control I hold in my hand allows me to move a vertical spot up and down. In this particular game, we chose to allow the human participant to move it anywhere on the screen, horizontally --

Q You are moving the right-hand player symbol?

A Yes, anywhere on the screen, through the manipulation of these two controls.

You have the same option.

Q I have a left-hand control player, and I can move my spot horizontally with a knob marked "Hor." or vertically with a knob marked "Vert.", right?

A Right.

You note there's a center line on the screen which denotes a net, which is cosmetic only, has no other qualities.

I think the ball is out on your side, Mr. Anderson. Push the button.

You notice I intercepted the ball suc-

cessfully with my paddle, and, as a result of that coincidence, deflected the ball's motion. It was reversed and it took off in that direction. Not only that it took off in an upward direction, because I chose to move my english control such that the ball had a vertical component imparted to it, and it took off to the upper left-hand corner.

Q All right, I will serve again. Here I go.

A There we go.

THE WITNESS: Let me look at that.

There we go.

BY MR. ANDERSON:

Q I lost it.

Now, is there any way in this demonstration unit that you could make the ball symbol, the hit symbol, stand still, or is it always moving?

A It is always moving.

Q What causes it to move and what causes it to change direction in this particular set-up to play ping pong as you have the demonstration unit set up now?

A What causes it to move is a signal that is impressed on the ball spot, the ball symbol generator, which commands it to move either left or right. A voltage.

THE COURT: What is the hit symbol again?

THE WITNESS: The hit symbol is the ball that is being hit. A hit symbol, by the definition of the patent, is the paddles.

In the case of a wall, the fixed hit symbol is the terminology the patent applied to the various spots.

BY MR. ANDERSON:

Q The ball is always moving. What are the various parameters that control its direction or speed of flight in

the demonstration unit?

A If you remember, we went in the context of the various schematics through a block which was called "English Flip-Flop" or just plain "Flip-Flop", which had associated with it a whole tree of diodes and controls.

Those controls have a function of determining the speed with which the ball traverses the screen from left to right or right to left. They are internal controls to the machine. They could be brought out, and in fact some later versions they were brought out, manually adjustable for the player to adjust the speed to suit his taste.

In the case of the vertical direction, we chose to bring the control for which way the ball would move vertically out to a knob, which we called "English knob" here. (Indicating). That is just the way we thought we would implement a game that plays nicely. There is no reason that control couldn't be on the inside and be either pre-positioned or possibly be varied as a function of the switch controls. That is a matter of what you think will play the best game.

In this particular case we thought it would be interesting to give the player the ability to squiggle the ball in a vertical direction or put English on the ball prior to having his paddle intercept.

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Q So when I adjust my English control on the left-hand player console that you have handed me, what does that determine in the ball's flight? At what time does it have an effect, and what is the effect, if you will?

A It takes effect the instant you have successfully intercepted the ball with your paddle. Since you are on the left, when the ball comes across, the moment you have intercepted the ball, the control takes over the vertical path, that is, the vertical height, of the ball spot on the screen.

So while it is flying across, that ball spot might go straight across if you were to put the knob in such a position as this up here (indicating) --

Q Can I demonstrate that? Can I turn the English full down and ask you to serve to me?

A I think we may not find it on the screen that way. Put it full up.

If I serve you now, just stand still, and you will find that your ball, after it leaves your paddle, travels straight across the screen and has no vertical component to the motion. Let's see if the ball is on this side.

No. I have to get it down. That's it.

Q That is horizontal? The english is set --

A Roughly such, in both cases.

Q Centered?

A Such that the ball has no vertical component.

If I turn my english control counterclockwise, then the next time that ball gets intercepted by the paddle, the right-hand paddle, it will go downward, like this.

Q Whoops. I should have done something.

A It will come back up and will go straight across now.

I will move it down and up again.

You missed it.

Q Now, if you will, I will serve it and set the english control that it is deflected upwardly when the ball hits, if you can do that.

A Yes. Like this (indicating). Bring it back again, and I will move it even further up.

Woops. Off the screen.

Q Now, that is a game that you called ping pong at the time you built the demonstration unit, is that correct?

A Yes. We called that ping-pong. If we took the net away, we called it tennis.

Q Can you demonstrate a second game that includes

the fixed wall of the '598 patent?

A Certainly. Let me switch the connections inside by flipping switches in accordance with the handball card. If I do that right, the wall should appear on the left-hand side, and it did.

Q Now, you have set the manual switches on the back of the demonstration unit to simulate handball, is that correct?

A That's right.

Q And that causes a vertical wall to appear on the left side on the screen?

A Yes, it did.

Q On Exhibit 6.

A Yes. You have the ball.

Q I have the ball?

(There was a brief interruption,
after which the following further
proceedings were had herein:)

BY THE WITNESS:

A What we are doing now is bouncing a ball off the wall symbol which, in the patent terminology, is called a fixed hit symbol, because it is fixed. It is not moved.

BY MR. ANDERSON:

Q Is there any player control over that left-hand symbol of the wall at all, or is that always set there?

A No, it is always set there.

Q In handball?

A In handball, it is always set there.

Q What are the various parameters in handball that control the ball? Is it possible to have the ball stand still, the ball hit symbol stand still?

A No, sir, it isn't.

Q What determines the motion or direction of the flight of the ball in this game?

A The horizontal motion is again determined by these internal components associated with the Flip-Flop we talked about a minute ago.

The vertical flight, again, is determined by position of the english knob on either one of the two control boxes after intercept. That is, again, if you intercept a ball, you take control of the vertical position. When I intercept the ball, I take control, which also means in this game, incidentally, that if I hang on to the ball, and this one is having a hard time doing that, like this, unless you physically come over and take the ball away from me, I retain vertical control. I will

demonstrate that by walking a ball down along the wall, and that control remains in my court unless you intercept that ball, as you did.

Now, if I were to turn that knob clockwise, that ball would take off in the upward direction.

Q All right, Mr. Baer. Thank you. You may resume the stand.

Were you at all involved in the demonstration of this demonstration unit, Exhibit 62, to the Magnavox Company?

A Yes, I was.

Q Would you describe your involvement in that demonstration?

A Yes. That demonstration was a result of a demonstration we had put on for R.C.A. much earlier, early in 1969, and during that particular demonstration one of the members of that team subsequently left R.C.A. and became an employee of Magnavox. He was instrumental in bringing TV games to Magnavox' attention.

As a result of that, we were invited to come to Fort Wayne, and Mr. Etlinger, who is our corporate director of patents, and myself traveled to Fort Wayne with that brown box, Exhibit 62, and several attachments that go with that box, and demonstrated for a large group of Magnavox employees.

Q As a result of demonstration to Magnavox, what ultimately happened with respect to your demonstration unit and your work on TV games?

A Initially there was an agreement that allowed Magnavox a period of time during which they would study the market for such a device, and they had an option to build a number of them to test market TV games, and subsequently an agreement was reached, a license agreement was reached, under which they went forward and developed into production engineers and manufactured their Odyssey TV games.

Baer - direct

Q Were you involved in the production engineering of the Odyssey games at Magnavox?

A Yes. I was involved in initiating the effort. Both Mr. Harrison and myself went to Fort Wayne on a number of occasions with cleaned-up documentation, that is, readable parts lists, schematics, and other data, and helped the engineers who were assigned to getting this product underway to move forward rapidly, because they were up against a rather tight time schedule.

Q Over what period of time, approximately, did you work with Magnavox in reaching a production stage of the Odyssey game?

A Well, during the period of early or mid-1970 well into 1971. I am sorry. That is mid-1971 into 1972.

Q Did you keep a record of the work which you or of any of the work which you did with the Magnavox people in reaching a production stage?

A Yes. There should be a large folder of documents which we physically carried to Fort Wayne with us and handed to them and worked with.

Q I will show you Plaintiff's Exhibit 73, entitled "Magnavox License Support," and ask if you can identify that?

A Yes, sir. That is the package of data which

Harrison and I put together. In fact, these are the originals which we took with us to Fort Wayne.

Q Are you familiar with the actual product that was ultimately marketed by Magnavox as an Odyssey game?

A Yes, I am.

Q I would like to show you Plaintiff's Exhibit 93-G, which is a Magnavox Service Manual, on ITL 200 BLAK and BK, Odyssey Game Simulator.

Are you familiar with that service manual?

A Yes, I am.

Q Perhaps referring to the block diagram on the first page of Plaintiff's Exhibit 93-G, the Magnavox Service Manual, you can point out how the blocks are interrelated and function in the context that you already described with respect to other games.

A Starting at the left-hand side, you would see both near the top and the bottom of that group of blocks two blocks labeled "Player No. 1 Control Unit" and "Player No. 2 Control Unit."

Surrounding those blocks are three variable resistance symbols, labeled "Vertical, Horizontal and English". Of course, what we are looking at here is the block diagrammatic representation of the hand controls which correspond to those we had in our hand when we were

standing on the floor here a minute ago.

Q That would correspond, then, to one of the control units labeled "Right Hand Player" and "Left Hand Player" of Exhibit 62?

A That's right, sir.

Q Are the same three knobs present in both?

A Yes, they are.

Q All right. Similarly, if you look at the group of blocks called "Player 1 Spot Generator" and "Player 2 Spot Generator" or the "ball Flip-Flop" and "English Flip-Flop", they correspond to those shown, if my recollection serves me right, in Fig. 12A or 12B of the second reissue patent.

Q Would you turn to Reissue Patent 28,598 and see if you can find that correspondence, please?

A Yes. As I said, it is Fig. 12A, sheet 7 of 598 that corresponds to the block diagram you see in the Magnavox Service Manual.

Q You said there are two blocks, the English Flip-Flop and the ball Flip-Flop, in the Magnavox Service Manual. Where did they find correspondence in Fig. 12A?

A English Flip-Flop corresponds with primary Flip-Flop, block 104 in the patent, whereas the ball Flip-Flop in the Magnavox book corresponds to the secondary Flip-Flop, box 122, in the patent.

Q Because the nomenclature is different, why don't you just point out the correspondence between the block diagram on the first page of Magnavox Service Manual Exhibit 93-G and the demonstration unit, and the patent, if that is appropriate or proper?

A You mean for the remaining blocks?

Q Yes.

A If you go to the manual again and look at the block called "Wall Spot Generator", that is equivalent to block 120, "Wall Generator", in the patent.

If you go below that on the manual to "Ball Spot Generator", you find that to be equal to 101, the "Dot No. 3 Generator (Ball)" in the patent.

Below that in the Service Manual the vertical sync generator corresponds to the block in the left-hand upper corner, block No. 102, of the patent.

Just below the vertical sync generator is the horizontal sync generator in the service manual, and that is block 103 in the patent.

Going back to the service manual, the summer at the top of the block diagram is equivalent to the summer of the block which is labeled "Summer R. F. Oscillator Modulator" in the patent, and to the right on the service manual of the summer we find that R. F. Oscillator, which

is part of the same block in the patent.

The gate matrix in the Service Manual is another way of describing the coincidence circuits, block 125, in the patent.

Have we left out anything?

There are some additional blocks shown in the Magnavox block diagram, which are not shown in the patent. For example, there is an R. F. filter shown, which follows the R. F. Oscillator that has the function of containing spurious emissions from the R. F. Oscillator from interfering with TV sets that might pick it up through radiations through the wall in the case of an apartment situation.

The antenna game switch, which is shown on the block diagram, is the same game switch we handled and talked about on the floor a few minutes ago.

I believe that is all.

Q Well, then, if you would, turn in the Magnavox service manual, Exhibit 93-G, to the circuit diagram which is -- includes pages 8, 9 and 10, the circuit diagram of the 1TL 200 Blak Odyssey.

Mr. Baer, have you compared this Odyssey circuit diagram to the final circuit diagram of your demonstration unit, which is Plaintiff's Exhibit 64-281?

A Yes, I have.

Q Are the two substantially the same?

A Yes, they are.

Q And do they function and play games in the same-- generally the same way?

A Yes, they do.

Q In the Odyssey game, did Magnavox employ the set of switches that you have on the back of your demonstration unit, Exhibit 62, to alter from one game to another?

A No, they chose to do this -- provide the function of switching from one game to another by means of plug-in printed circuit cards, which, in effect, do the same thing as the switches. They connect various elements of the circuits together in such a way as to set the circuit up for a particular game.

Q Without describing the detailed circuits of pages 8, 9 and 10 of Magnavox Exhibit -- Plaintiff's

Exhibit 93-G, just point out generally where the various parts are located in that circuit diagram which correspond to the block diagram on the first page of Exhibit 93-G and the block of the patent 28,598?

A All right. If you notice, the schematic that was done by Magnavox for the manual is rather well executed, and each elemental building block is labeled, so if you will take the second row, for example, and start at the left, with the block labeled near the bottom left-hand corner "Ball Generator," that ball generator is equivalent to box 101 in the patent, Figure 12 --

THE COURT: What page are you on in the manual?

THE WITNESS: On the very first fold out, sir, of this schematic.

BY MR. ANDERSON:

Q It's numbered with three page numbers, 6500-8, -9 and -10, your Honor.

THE COURT: All right, go ahead.

BY THE WITNESS:

A All right, let's go back to the ball generator. If you look at the left-hand side, second row down, you will see an aggregate of components sort of encircled by dashed and broken lines, heavy broken lines, and connectors at the left and right-hand side, and that's a plug-in card in the physical model which has the function of creat-

ing the ball, and it is labeled "Ball Generator".

To the right of that is a similar plug-in module labeled "Wall generator," which would be the same as block 120 in Figure 12B of the '598 patent.

To the right of the wall generator, you will find the player generator number 1, which I believe is the left-hand paddle on the screen.

Player number 2 is to the right of that, and identical module.

And those two modules would, of course, correspond to 107 and 108, player A and player B blocks in Figure 12B of the patent.

Immediately below that row is another row of circuitry. The first block on the left is labeled "Summer". That summer corresponds to box 125 which we labeled "Coincidence Circuits" in the patent.

To the right of that is a gate matrix which has the -- I'm sorry, that was incorrect, -- the summer, of course, is identical to the block labeled "Summer" at the upper right-hand corner of 12B, and it is the gate matrix block on Magnavox' schematic that corresponds to block 125 coincidence circuit in Figure 12B of the patent.

Going further to the right, there is an area labeled "Horizontal sync generator", and just to

the right of that is the "Vertical sync generator," and those two correspond to 103 and 102, respectively, in the patent.

Near the bottom of the page are two blocks labeled "Flip-Flop/Ball" and "Flip-Flop/English". Those two blocks correspond to the primary and secondary Flip-Flop blocks 104 and 102 respectively, in Figure 12A of the patent.

At the upper -- at the top of the Magnavox schematic are two areas that project near the center and the right of that schematic, and they are labeled "Hand control number 1" and "Hand control number 2". Those are the schematics that show the interconnections between the horizontal, vertical and english controls, and the push button which you saw us operate earlier today, and which would be depicted by such items as 115, 111, 116, 112 in Figure 12A, the knobs, and the associated controls connected to these knobs by dashed lines.

Finally, the RF oscillator underneath the page number 6500-9, the RF oscillator is identical to that part of the summer RF oscillator modulator block in the upper right-hand corner of the patent Figure 12A.

And that's essentially it.

Q All right, is there any function or feature of the demonstration unit, Exhibit 62, that is not included in the Magnavox Odyssey ITL 200, to the best of your knowledge, at least in the play of the ball games?

A Not in the play of the ball games, as we have discussed them so far.

Q And is there any function or feature of the Odyssey ITL 200 in playing ball games that wasn't in your demonstration unit?

A NO, sir.

Q Now, does the disclosure or the drawings and description of the Reissue Patent Re.28,598 include the various circuits and functions of the demonstration unit, Exhibit 62, and Odyssey ITL 200?

A Yes, they do.

Q Prior to the work of your group, do you know of any other game that employed the use of a continuously moving game-controlled ball where the direction of the ball could be altered by the player?

A No.

Q Or do you know of any other hit symbol other than a ball that had been used before to function in that manner?

A No, I do not.

Q With respect to the inclusion in the '598

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patent of the visible fixed wall to alter the flight of a ball or other hit symbol, which is hit also by a player, do you know of any game for use with TV that had that functional relationship prior to your work?

A No, I do not, and did not then.

Q We have an Odyssey ITL 200 in the courtroom. Is it possible to demonstrate that to show the comparison of its operation with your demonstration unit?

A Yes, it is.

THE COURT: Maybe this would be a good time to break for lunch.

MR. ANDERSON: Thank you, your Honor.

THE COURT: And we will do that after lunch.

We will recess until 2:00 o'clock.

I think what we can do this week, if it's convenient for you gentlemen, we can go until 5:30 today and tomorrow, and then on Wednesday I have my afternoon motion call, but we can start the morning and go until, say 1:00 o'clock, and then come back again on Thursday, and we can go from 10:00 until 5:30. Now, Friday is a Court holiday, as you know.

How far do you think we will get on that schedule this week?

MR. ANDERSON: I would think we would do quite

well. As a matter of fact, Dr. Riddel, one of our witnesses, could not get here today. We thought he would be here early this afternoon. He called this morning and said he cannot get here until after 5:00 o'clock today, so that if we finish with Mr. Baer, I'm afraid we will not perhaps be able to use the time you have offered us, depending on your cross, Mr. Goldenberg.

I will estimate we will be finished with Mr. Baer in approximately an hour.

MR. GOLDENBERG: I think I have enough cross to carry Mr. Baer through the rest of the afternoon.

MR. ANDERSON: Fine.

THE COURT: Next week I have got this specially set case that's supposed to start on Monday, and now will start on Monday, so it looks as though I will not finish with your this week, but I will get back to you again as soon as I can after I get that case --

MR. ANDERSON: That, I understand, is a fairly protracted case?

THE COURT: Right, three weeks, anyway, I suppose.

How far do you think we will get this week in this case? Will we complete the plaintiff's

case?

MR. ANDERSON: That's possible, I think, based on the schedule that you suggested, although if not, it will be close. Perhaps one day after that, or something of that sort.

THE COURT: I would love to get you finished. How long do you think the defense case will take, Mr. Goldenberg?

MR. GOLDENBERG: Your Honor, I think about two days.

THE COURT: If I could hold that other case off until the latter part of next week, we might be able to finish this case.

MR. ANDERSON: I would think we might be able to. I would certainly try to move our case --

MR. GOLDENBERG: I would have to get relieved. I have a pretrial conference set in a case in Cleveland for the 5th.

MR. ANDERSON: That's Wednesday. The 3rd is Monday.

MR. GOLDENBERG: Yes, and I will certainly try, if your Honor can do it, I will use my best efforts to get relieved.

THE COURT: Let me see just what would be involved with that other case. It's another techni-

cal case where I know they are bringing witnesses in from all over the country, and I don't know what kind -- I had given them this date as long as five or six months ago, so we may have made rather definite plans, but I will look into it.

All right, recess until 2:00 o'clock.

(Whereupon the trial of the above-entitled cause was recessed to 2:00 p.m. of the same day and date.)
